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Survey of lesser white-fronted goose *Anser erythropus* in Nakhchivan of Azerbaijan during 20-24 January 2015

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Abstract

A field survey of the Aras water reservoir within Nakhchivan Autonomous Republic and the adjoining flood-plain area of the Aras River valley within Sadarak district near the border of Iran and Turkey was carried out i 20-24 January 2015. Only four small flocks of Lesser White-fronted Geese were located, of which the biggest being 80 individuals. However, these observations together with tracking and location data on satellite transmitter tagged birds proves that at least for the LWfG the whole area of the Aras River valley from the border of Turkey to the Aras reservoir dam serves as a wintering ground. Considering their high significance, the wetlands of the Aras reservoir and Sadarak district should be assigned the status of highly protected area.

The survey also covered the numbers and distribution of other water bird species in the area. Within Azerbaijan part, more than 25000 waterfowl and shorebirds winters, which qualifies this important area to the list of important RAMSAR wetlands.

Keywords: Nakhchivan Autonomous Republic, ornithofauna, Aras reservoir, *Anser erythropus*, species

Introduction

The Lesser White-fronted Goose *Anser erythropus* is listed in the Red Data book of IUCN as well as in Red Data books of all countries within its distribution area. International research on Lesser White-fronted goose (later abbreviated as LWfG) found that some birds tagged with satellite transmitters in their breeding area in Putorana plateau stopped in Aras River valley during their autumn migration ^[2, 5, 6, 7]. Two birds tagged in Bolshezemelskaya Tundra and the Polar Urals stayed there for the whole winter 2013/2014 ^[4]. These data proved the necessity to carry out further investigations in the Aras River valley to clarify its importance as a wintering ground for LWfG.

Research on study of Aras reservoir and the Aras River valley within Nakhchivan Autonomous Republic. The main objective was to collect information about wintering of LWfG as well as the numbers and distribution of other water bird species in that area.

Material and methods

The survey of the reservoir within Nakhchivan Autonomous Republic and the adjoining flood-plain area of the Aras River valley within Sadarak district near the border of Azerbaijan and Turkey (figure 1) was carried out in 20-24 January 2015.

Study area

The Aras reservoir was created in 1972 and is located on the boundary between the Islamic Republic of Iran and Nakhchivan Autonomous Republic of Azerbaijan (figure 1). The coast of the reservoir is situated 10 km to south and south-west from Nakhchivan city, the capital of Nakhchivan Autonomous Republic of Azerbaijan. The Aras reservoir is located at an altitude of 777m asl. The square of the reservoir is 14 500 hectares, with a length and width of 52 km and 6.1 km respectively. The maximum depth is 18.2 m. The reservoir was created for electric energy production and for irrigation within both countries. The lowland areas at 100-500m from the coastline of the reservoir are occupied by winter pastures and agriculture fields (see foto on the front page of the report). The Azerbaijan part of Aras reservoir have status as a Governement Nature Refuge ^[3].

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The climate of the River valley is temperate warm. Summer is dry and hot. Middle temperature in spring is +10–22 °C, in summer +18–33 °C and in winter –5–11 °C. Minimal air temperature in winter can be as low as –30–32 °C. In such cold winters only small area of the reservoir about 3–5 hectares do not freeze. The natural vegetation in the study area is semi-desert ^[1].

Survey method

Aras reservoir was surveyed by driving along the coast and counting birds in chosen sites within the water body and the coastline. GPS was used to locate the borders of counting sectors.

Bird counts were carried out in the first half of the day from the sunrise to the noon. Later in the afternoon, the counts

were stopped due to air refraction and unfavorable light conditions.

10x magnification binoculars and 20–60x magnification telescopes «Swarovski» and «Zeiss» were used. Every bird congregation was counted once or twice by three people.

The final result was calculated as the average. In two cases bird gatherings on the were counted by two people, while the birds located in adjoining fields and pastures were counted by the third person. The results of the counts were summed for each sector and for the whole area.

If the light conditions or density of the flocks did not allow reliable identification of the of LWfG or species composition with binoculars, a digital camera *Sony Cyber-Shot DSC 50x* zoom and a *Canon* with lens 400 mm were used.



Fig 1: Location and the map of Nakhchivan Autonomous Republic. Pink patch show surveyed area where LWfG were found.

Results

Data obtained with satellite transmitters in earlier years showed that LWfG were confined mainly to two areas within the Aras River valley (figure 1 & 4). The first one located within Sadarak district appeared to be vast damp low-grass meadows, nourishing with water from the canal in the widest part of the Aras River valley (figure 2 & 4). Within these meadows on the left bank of the canal, a flock of grazing geese was spotted on the 20 January. It consisted of 202 Greater White-fronted Goose (later called GWfG) and 11 LWfG of which the latter represented 5.1% of the number. Weather conditions were good and allowed not only counts and proper identification of all geese, but that there were no tagged birds among them. Further analysis of information obtained through satellite transmitters confirmed the fact that tagged birds stayed in Aras reservoir at the same period of time.

During the second investigation of the area on the 24 January, we revealed that the geese stayed within the same habitat and grazed on the same place as it was on 20 January. With the total number of 233, there were 11 LWfG (likely the same birds as on 20 January) and 222 GWfG. LWfG accounted for 4.7% of the geese. Interestingly, at the beginning of the day there were 120 geese, 3 of which were identified as LWfG, but 30 minutes later another flock of 110–115 geese arrived from a distant part of the meadow and joined the flock. After that, the geese flew over the meadows landing repeatedly for

grazing. At one site they were quite close to the observers (distance was about 100 m) and were thoroughly counted (Table 1).

It is necessary to mention that a flock of Greylag Goose of over 1000 birds stayed at the same territory, but they preferred to graze and rest in high-grass meadows with mudflats close to reed growth near the canal. Mixed flocks of GWfG and LWfG always stayed separately and never joined the Greylag Geese.



Fig 2: The landscape and habitats at the Sadarak settlement vicinity. The mixed flock of GWfG and LWfG feeding on the grass meadow.

Table 1: Species composition and border in the Sadarak settlement vicinity. Numbers of waterbirds on the grass dows at the Turkish-Nakhchivan.

Species		Survey dates	
English	Latin	20.01.2015	24.01.2015
Pygmy Cormorant	<i>Phalacrocorax pygmaeus</i>	2	7
Bittern	<i>Botaurus stellaris</i>		1
Great White Egret	<i>Casmerodius albus</i>	5	2
Grey Heron	<i>Ardea cinerea</i>	2	4
Greylag Goose	<i>Anser anser</i>	1200	1480
Greater White-fronted Goose	<i>Anser albifrons</i>	214	233
Lesser White-fronted Goose	<i>Anser erythropus</i>	11	11
Ruddy Shelduck	<i>Tadorna ferruginea</i>	32	115
Shelduck	<i>Tadorna tadorna</i>	9	6
Mallard	<i>Anas platyrhynchos</i>	11	185
Teal	<i>Anas crecca</i>	43	100+
Gadwall	<i>Anas strepera</i>		24
Pigeon	<i>Anas penelope</i>	34	48
Shoveler	<i>Anas clypeata</i>	28	67
Pochard	<i>Aythya ferina</i>	2	24
Tufted Duck	<i>Aythya fuligula</i>		12
Marsh Harrier	<i>Circus aeruginosus</i>	3	6+
Moorhen	<i>Gallinula chloropus</i>		2
Coot	<i>Fulica atra</i>	61	15
Lapwing	<i>Vanellus vanellus</i>		17
White-tailed Plover	<i>Vanellochettusia leucura</i>	3	3
Green Sandpiper	<i>Tringa ochropus</i>	1	2
Redshank	<i>Tringa totanus</i>	30	42
Spotted Redshank	<i>Tringa erythropus</i>	8	11
Common Sandpiper	<i>Actitis hypoleucos</i>		1
Ruff	<i>Philomachus pugnax</i>		6
Temminck's Stint	<i>Calidris temminckii</i>	2	
Little Stint	<i>Calidris minuta</i>	1	
Common Snipe	<i>Gallinago gallinago</i>	4	4
Total		1706	2322

Note: "+" after figure shows, that species number is a minimum

A territory near the central part of Aras reservoir located between the dam and a settlement of Karachug was the second area where tagged LWfG were found (figure 1 & 4). We investigated this area in 21-23 January and revealed a large gathering of geese at the reservoir shore near the dam. On 21 January, there were two mixed GWfG and LWfG

flocks of 162 and about 400 birds. As the light conditions were unfavorable, and the geese were cautious, it was not possible to estimate the proportion of two species. The estimation based on the pictures of 100 geese of the smaller group showed that 80% of them were LWfG.



Fig 3: The habitats at the bank of Aras reservoir.

Another mixed group of GWfG and LWfG stayed near the reservoir opposite the settlement of Karachug (figure 3 & 5). On 23 January the geese grazed on the wheat fields (figure 6) and moved actively around the place, so it was difficult to define if there were tagged birds among them as well as to

calculate the total number. Three approximate counts revealed about 470-480 geese with 30-32 LWfG among them (figure 7). Thus, the proportion of LWfG was about 6.5%, which was approximately the same as in Sadarak area.

Table 2: Observations of White-fronted and Lesser White-fronted geese during the winter survey.

Date	# GWfG+LWfG combined	# LWfG	Site name	Latitude	Longitude
20.01.2015	211-213	11	Sadarak district	39.65694	44.84014
21.01.2015	162-200	>80	Aras Res. Near Araz village	39.11830	45.39821
21.01.2015	400	-	Aras Res. Near Araz village	39.12476	45.39777
23.01.2015	480	30-32	wheat field near Karachug settl.	39.18412	45.36019
24.01.2015	233-235	11	Sadarak district	39.65694	44.84014
sum					



Fig 4: Sites with numbers of Lesser White-fronted geese observed during the survey.



Fig 6: Wheat fields near banks of Aras reservoir is one of feeding habitat of by LWfG in Nakhchivan Autonomous Republic.

Discussion

The Aras reservoir is of great importance for geese as a day and night resting/roosting site. Since the state border between Azerbaijan and Iran stretches along this area, the access to this territory is restricted and low disturbance creates quite favorable conditions for game birds.

Unlike ducks, which prefer to stay at shallow water near the shore, geese often graze at a distance from the reservoir. In the morning, they fly to the adjacent fields of winter wheat crop, which is their favorite food in the when there is no fresh grass in ploughed fields and pastures. We found excrements and observed geese in wheat fields regularly while counting them. The locations of satellite transmitter tagged birds also support that wheat fields are one of their permanent food resources.

Interestingly, high numbers of waterfowl and geese observed in Sadarak despite a few Areas of open water can be explained by a wide variety of low- and high-grass habitats of different structure providing providing a supply for different goose species. Thus, LWfG and GWfG prefer low-grass communities concentrated in wet grass meadows of middle and upper flood zone (figure 7), while Graylag Goose confined mainly to high-grass areas with mudflats spread profusely along the bank of the canal behind the reed belt (figure 9).



Fig 7: The mixed flock of GWfG and LWfG feeding on the wheat field at Karachug village.



Fig 5: Geese resting at the bank of Aras reservoir near Karachug village.



Fig 8: Feeding habitat of LWfG in Sadarak district at Aras River.



Fig 8: Feeding habitat of Greylag Goose in Sadarak district at Aras River.

In conclusion, it should be emphasized that the Aras reservoir and the Aras River valley within Nakhchivan Autonomic Republic are of primary importance for nature protection. Within Azerbaijan part, more than 25 000 waterfowl and shorebirds winters, which qualifies this important area to the list of important RAMSAR wetlands.

As far as wader numbers are concerned, the wetlands near the settlement of Sadarak area is considerably less important in comparison with the Aras reservoir. In total, we counted 3846 individuals of different water birds species within Sadarak area. However, due to the state border of four countries, the access to this district is limited and we did not manage to explore the whole area. We believe a larger number of geese than we counted, winters within this territory. The data obtained through satellite transmitter tagging of LWfG in Russia revealed that the geese moved around and stayed for a period from several days to several weeks within the habitats of both areas (Aras reservoir and Sadarak). This proves that at least for the LWfG the whole area of the Aras River valley from the border of Turkey to the Aras reservoir dam serves as a wintering ground. Considering their high significance, the wetlands of the Aras reservoir and Sadarak district should be assigned the status of highly protected area.

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